

CDO PLAYBOOK: Advancing the Federal Data Strategy

The CDO Playbook is an iterative document that explores and defines the evolution of the federal CDO role. It provides new and existing CDOs with guiding principles, opportunities for quick wins, and best practices to navigate some of the key areas that CDOs should focus on today and over the next few years.

Federal CDOs come into their role needing a wide array of skills. They must be data evangelists responsible for changing the agency culture to use data to solve real problems and to adopt enterprise data standards that improve overall data quality as a by-product. They must inspire agency offices to engage in a shared unified vision for data by demonstrating they are strategic thinkers who understand how data can drive better agency outcomes and be of greater value to society. Much like the Office of Personnel Management’s (OPMs) five executive core qualifications (ECQs), it takes a variety of leadership skills, both hard and soft, to build trusting relationships with key stakeholders and advance the mission of their agency. According to federal CDOs, persons in this position must have the ability to:

- Communicate and translate complex concepts to all audiences
- Understand and prioritize organizational business challenges and deliver value in these areas
- Build and lead teams across the organization
- Remain goal oriented and focused on reaching specified objectives by establishing structure and managing towards outcomes
- Adapt and deal with different issues of importance to different customers
- Influence others to realize the mission value of data
- Manage change within organizations

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Chief Data Officers Council (CDOC)

Stakeholder(s):

Data Skills Working Group :

The CDO Council's Data Skills Working Group (WG) created this playbook of four key "plays" which draws from successful practices in both industry and government. It is advice from CDOs to other CDOs, hence you will notice the informal tone and admonitions of what 'you' should consider. It leverages and cites concrete examples from federal CDOs on how they have applied specific strategies and approaches to make progress in each play to deliver value in this evolving role as a change management leader.

Chief Data Officers :

The federal Chief Data Officer (CDO) position is a pivotal and transformational role that can significantly benefit the collection, organization, analysis and use of data in the agency as well as improve its value to society. The CDO must embrace the roles of change agent and evangelist to bring the inspirational vision of what data can do for all stakeholders... A 2020

Gartner survey shows 14% of CDOs have been in their roles for less than a year. Many come into their role finding data silos throughout their agency, with data in disparate places and data functions mostly decentralized. CDO reporting and organizational structures also vary from agency to agency. Despite all this, CDOs must demonstrate early value generation, providing capabilities that build credibility and distinguish themselves as an executive far from the back office with a seat at the leadership table.

Federal Agencies :

Federal agencies are at different points of their data journey. While some CDOs have data science teams that are leveraging advanced analytics to derive meaningful insights, others have little to no budget or staffing resources to carry out the initiatives that support their data vision and strategy.

Vision

The federal government uses data as a strategic asset

Mission

To help CDOs be key value drivers as the federal government expands its use of data as a strategic asset

PLAY #1. Relationships

Cultivate strong relationships to partner on solving mission problems with data.

Establish partnerships to realize quick wins - CDOs are most successful when they engage and influence key stakeholders. Your stakeholder engagement strategy should focus on forging relationships before zeroing in on data governance activities that may risk appearing solely compliance driven.

1.1. Stakeholders

Identify your key stakeholders and learn how best to engage them in problem solving through collaborative working relationships.

KEY ACTIVITIES • Conduct a stakeholder analysis starting with leadership, then moving to agency or sub-agency offices. Key stakeholders should include a variety of levels of data expertise including agency data stewards with expertise in working with data as well as offices unaware of their data capabilities. • Interview stakeholders to identify their mission needs and challenges. Give them opportunities to voice their interests and priorities. Some example interview topics include priority questions, as well as data needs, acumen, access gaps, and opportunities, etc. • Use stakeholder needs to guide decisions about how to remove any relevant organizational obstacles related to data goals and identify potential project opportunities.

COMMON PITFALLS • Do not just start with data governance for the sake of data governance, partner on key questions to drive value. CDOs can improve data governance and data quality as needed to meet agency goals.

1.2. IT Decision Makers

Engage IT decision makers to build partnerships around data priorities.

KEY ACTIVITIES • Actively engage with key IT partners to collaborate on planned IT projects where data transformation opportunities exist or to gain access to IT environments and tools needed for future data projects. • Develop understanding of the relationship between CDOs and Chief Information Officer (CIO) even where there is no direct reporting relationship. • Cultivate consensus with the CIO and other leaders on shared priorities. This common understanding is significant because of the interdependent nature of the two roles. • Build coalitions with key IT partners to seamlessly integrate into the IT investment and governance processes within your agency. IT and data priorities are connected and often share interdependent goals of generating increased business value. • Ensure you are aware of the types of planned and current IT investments and projects to prioritize key data activities. This strategic relationship building tactic demonstrates your ability to develop meaningful partnerships.

Stakeholder(s):

IT Decision Makers

1.3. Pilot Projects

Partner with stakeholders from across agency offices to collaborate on pilot projects that solve specific business problems.

Successful small-scale projects or “quick wins” build the credibility needed to support longer-term goals. **KEY ACTIVITIES** • Deliver solutions quickly and communicate wins to demonstrate value to your agency to increase support and buy-in for your data vision. • Plan pilot projects such as data prototyping opportunities with interested agency offices to achieve fast results to make the case for data investment to executives. • Focus on the “What’s In It For Me” (WIIFM) by having value conversations and asking if stakeholders see additional business opportunities so you can further ideate on solutions leveraging analytics capabilities.

Stakeholder(s):**U.S. Department of Agriculture :**
AGENCY EXAMPLE

- *The CDO at the U.S. Department of Agriculture (USDA) developed Human Resources (HR) dashboards with consistent information data collected from 19*

different component agencies. This quick win initiative demonstrated labor savings by moving away from siloed approaches, which ultimately led to confidence for more data projects and deployments in other mission areas.

1.4. Data & Analytics

CDOs should work with executive stakeholders to demonstrate how data and analytics initiatives address agency challenges.

KEY ACTIVITIES • Conduct targeted discussions with key executive stakeholders to obtain their buy-in for your proposed data priorities and high-impact solutions. • Identify and prioritize solutions to your agency's data challenges which connect to agency mission goals and manage time and risk. • Implement foundational initiatives, for example, developing data definitions and standards or more focused use cases to build more capabilities over time. • Review lessons learned from previous pilot projects to factor into your plans.

Stakeholder(s):**Executives****1.5. Value Propositions**

Continuously engage with decision-making executives and other key stakeholders to continue value proposition discussions and the value of data.

Agency-wide representation and support gives a broader lens to the organizational drivers and constraints needed to make data-related decisions. **KEY ACTIVITIES** • Ensure executive sponsorship and support for your data priorities to build momentum and encourage investment to address data issues throughout your organization. • Conduct strategic discussions with a stated purpose and desired outcome, whether it is to inform, gain support, or ask for funding.

Stakeholder(s):**Executives****1.6. Progress, Plans & Capabilities**

Communicate to your entire workforce the progress, successes from your quick wins, and plans for building and delivering long-term capabilities for the agency.

KEY ACTIVITIES • Build organizational awareness through agency-wide communication that keeps employees interested in your agency's data transformation journey. • Effectively communicate about data transformations, how to get involved, and share tools are available to build awareness and trust. • Anticipate questions from stakeholders on the value of working with the CDO.

PLAY #2. Data Sharing

Promote data sharing and break organizational silos.

Effective data management enables data sharing and access across the enterprise which can eliminate data redundancies and lead to overall improved data quality and provide better services. Additionally, data analytics and emerging technologies are dependent on having strong and acceptable data management functions in place, so you have quality data with which to work. The CDO role is to break down organizational silos to foster better transparency and collaboration into the data needed to succeed in transformation projects.

2.1. Data & Infrastructure

Collaborate with your CIO Office, statistical official, and evaluation officer (if present in your agency) to understand the history of your agency's data and infrastructure maturity.

KEY ACTIVITIES • Build in-depth knowledge of the agency's data history and infrastructure maturity. • Gain familiarity with the business cases for the agency's planned investments to understand context and set expectations before engaging with individual agency offices. • Conduct knowledge transfer meetings to help uncover operational silos and determine data sharing needs of stakeholders who perform data management functions. Gather available documentation on existing data systems and their IT environments (e.g., the IT infrastructure).

2.2. Data Stewards

Identify a strategy to optimally organize and assign data stewards across the enterprise.

KEY ACTIVITIES • Implement a data stewardship model to break silos across agency offices and create partnerships between the CDO and agency offices as well as amongst data stewards themselves. • Organize stewards across your organization to establish accountability and responsibility for the processes that ensure effective control and use of data. As defined in Play #1, first identify all the data stewards across various business lines performing data management and analytics functions. • Engage with these stakeholders to build consensus on a standard set of core principles and clear expectations of stewards.

Stakeholder(s):

Data Stewards

2.3. Training & Empowerment

Provide opportunities to train and empower data stewards to be effective in their role.

KEY ACTIVITIES • Facilitate cross-sharing of best practices for data usage by having meetings with informal data stewards to discuss the activities they perform in managing their data. • Work iteratively with informal data stewards to develop a stewardship framework based on their input and feedback, and gain consensus on their role (e.g., tracking data inventories and collections). • Coordinate with data stewards to identify the linkages needed between datasets, and to lead cross organizational projects. This type of framework empowers data stewards by considering their needs and opinions and fosters knowledge sharing.

Stakeholder(s):

Data Stewards

2.4. Automation

Establish an automated means to manage stewardship responsibilities.

KEY ACTIVITIES • Gain additional insights across silos of operations and support any future data standardization projects. • Document all existing data assets to show the value of agency data. • Engage with data stewards to obtain and document business requirements and use cases for their data systems. • Obtain relevant metadata and classify the types of data being collected, used, and stored which will require an automated means for stewards to interface and accumulate such data. Be sure to provide guidance for sharing and/or obfuscating/tokenizing sensitive data. Developing a metadata inventory is important for building trust and enabling data sharing.

2.5. Data Lifecycles

Collaborate with data stewards to develop data lifecycle management best practices.

The OPEN Government Data Act mandates that CDOs establish data management best practices to improve the quality of agency data. **KEY ACTIVITIES** • Implement a data management program to develop decision making policies and procedures. • Build agency capacity to establish formal data management policies and standards on implemented data assets. • Raise agency data awareness early by developing best practices for managing agency data in partnership with data stewards. • Develop initial data standards on the representation of data to educate agency stakeholders about the value of data management, standards, architecture, and data driven decision making.

Stakeholder(s):

Data Stewards

U.S. Food and Drug Administration :

AGENCY EXAMPLE

- *The CDO at the U.S. Food and Drug Administration (FDA) created a steering committee and separate working groups both staffed by various FDA Center em-*

ployees to identify data initiatives and come to consensus on recommendations for their organization. Using this approach created a process that creates a sense of ownership for data stewards, involving them in the decision-making which has led to stronger partnerships with the CDO.

2.6. Data Management

Determine how your data management program will be organized.

The data management domains of your program will serve as inputs to your data management strategy (see next step). **KEY ACTIVITIES** • Create a data management framework connecting your agency's data management program to the needs of your stakeholders. • Include senior leadership and the agency data analytics community

as stakeholders so that data management can best inform analytics. • Implement data management frameworks which include specific disciplines, policies, and competencies that are applied throughout the data lifecycle.

2.7. Data Strategy

Develop a data management strategy in collaboration with your CIO, Chief Technology Officer (CTO), Chief Enterprise Architect or Chief Data Architect, and agency leadership, based on the findings and inputs from earlier action steps.

A data management strategy will help you think through how to prioritize investments and resource allocations (e.g., data analytics, data infrastructure). **KEY ACTIVITIES** • Implement your data priorities with a focused data management strategy that includes iterative approaches to addressing the various challenges of enterprise data management. • Consider including collaborative activities and incremental data projects. • Align your agency's IT strategy and modernization initiatives to the data management strategy to ensure IT and data are coordinated. • Explain how data analytics fits into your strategy.

2.8. Change Management

Develop an Organizational Change Management (OCM) plan to support your data management strategy.

Integrating change management strategies can successfully persuade stakeholders to implement or adjust data management methods or practices. **KEY ACTIVITIES** • Most importantly, engage senior and executive leadership from across business lines to garner support for your enterprise data management vision which ensures you have the backing from across the organization. • Develop an OCM coupled with project management and system engineering approaches to drive successful, largescale transformations (e.g., IT or data modernization, workforce strategy, and policy changes). • Integrate OCM strategies into data projects to advance strategic relations, increase teamwork and stakeholder buy-in, reduce the risk of customer resistance, and enable operations to be more efficient in achieving the full value of an initiative. • Assess your agency's culture to better understand which key stakeholders need to be involved in your data management initiatives and what methods will be effective in implementing them. • Include consistent and ongoing communications tactics for any desired data initiatives to help stakeholders understand why they should adapt to new changes.

2.9. Projects

Prioritize data sharing projects that generate measurable business outcomes and align with strategic objectives.

Using an incremental approach to data management not only delivers benefits to impacted business stakeholders but it also helps you gain quick wins. **KEY ACTIVITIES** • Prioritize high-value impact projects, such as those at the management or secretary level, and leverage opportunities for data standardization and integration during planned IT projects. • Execute against your OCM plan, including communicating any upcoming and major milestones of your planned data projects to key stakeholders.

Stakeholder(s):

Nuclear Regulatory Commission : *AGENCY EXAMPLE*

- *The CDO at the Nuclear Regulatory Commission (NRC) built a master data management system for a very complex project collecting information required to determine the fee base for their regulatory service licensees. To become more*

transparent to their customers, they wanted to bring data from all lines of businesses throughout the agency to be granular enough to identify charges. The CDO identified data stewards from each of the offices that manage their own systems to collaborate on this project and share their data into this master data management system.

2.10. Business Language

Collaborate with data stewards to develop common business language, such as data term definitions for metadata.

Managing metadata vocabularies, formats, and standards ensures a common understanding across the agency of data meaning and its uses. **KEY ACTIVITIES** • Establish strong metadata tags on data assets helps you find and manage data effectively. • Leverage relationships with data stewards to participate in these foundational data standardization efforts. This activity also supports data cleansing efforts for any forthcoming data projects.

Stakeholder(s):

Data Stewards

2.11. Data Consolidation

Identify data consolidation opportunities across database systems including data sharing and access between business lines.

Evaluating data management and analytics capabilities can help you identify open source or shared service opportunities across systems to improve cost efficiency. **KEY ACTIVITIES** • Collaborate with data stewards to identify organizational silos throughout your agency, which can uncover redundancies and overlapping data in systems, tools, and processes. • Assess data tool usage and costs across the agency. Individual agency offices may be applying data analytics into their respective programs; therefore, it is imperative to assess current agency data tools including their licensing costs.

2.12. Databases & Platforms

Design a conceptual target data architecture and enterprise solution for databases and other data platforms creating an environment to establish formal data standards.

Establishing a target data architecture brings your strategy and the technology side together to show the relationships between your agency's data functions, technologies, and types. **KEY ACTIVITIES** • Use your target data architecture to provide the infrastructure to share or migrate data from where it is stored to where it can be analyzed. This data structure should include an infrastructure for a high-functioning analytical environment. • Create a solution that solves the needs of different stakeholders and leverages data as an organizational asset, to discourage agency data silos. An enterprise solution may also lower IT costs.

2.13. Data Aggregation

Begin data aggregation activities for data consolidation, integration, and service projects.

This action ensures you have compiled and processed all the data from different databases needed for your data projects. **KEY ACTIVITIES** • Implement enterprise data solutions will require gathering data from disparate sources within your agency and making sure you have high quality information data. • Consider data aggregation as a tool in all initiatives and projects. This means you need good extract, transform and load (ETL) capabilities, a necessary process for you to optimize your data for analytics.

2.14. Performance Metrics

Define and track performance metrics across your data management program functions and monitor overall progress toward them.

The information collected provides feedback and inputs into your data management strategy. **KEY ACTIVITIES** • Link your data management performance metrics to specific business performance metrics. • Design your data management program to drive or meet business outcomes. This means tracing business outcomes back to supporting analytics output and underlying data.

2.15. Tools & Technologies

Routinely assess all agency data management tools and technologies (e.g., data analytics capabilities) including Operations and Maintenance (O&M) costs for efficiencies.

With the evolution of data tools, it is important to constantly evaluate your existing resources to determine where cost savings opportunities are. **KEY ACTIVITIES** • Implement and maintain data management investments, a key role of the CDO. • Use your budgeting and data resource management process to show how you are prioritizing resources to meet agency needs.

PLAY #3. Data Literacy & Culture

Build a data-driven culture by taking the lead to improve data literacy and acumen within your agency.

Invest in the individuals within your workforce to create a data-driven culture by improving data literacy and skills. Focus on providing an inclusive approach to building and harnessing basic data skills, knowledge, and competencies in all staff and leadership. Additionally, part of your OCM plan should include strategies for transforming the overall agency culture by getting your workforce to understand the mission value that data can deliver.

3.1. Training

Conduct a landscape analysis to document existing training requirements and identify available training opportunities within your agency and across the federal government that your agency may be able to utilize.

Consult the Federal Data Strategy's Curated Data Skills Catalog in this process. Use existing training resources as a cost-effective approach to training implementation and to leverage potential shared service opportunities across the federal government. **KEY ACTIVITIES** • Connect with your HR office to learn about efforts taking place at the Office of Personnel Management (OPM) and across government regarding the data space (e.g., government-wide data science training programs, establishing data science job descriptions, etc.). • Coordinate with your agency's CIO, Chief Learning Officer, and Chief Evaluation Officer to learn about parallel efforts taking place with regards to training and hiring both within the agency and through their respective cross-agency council groups. • Ensure there is alignment between the technology, evidence, and data sides as there may be similar requirements and goals where opportunities for collaborative synergies exist.

3.2. Education & Awareness

Build an education and awareness campaign that focuses on communicating the importance and value of data throughout the organization while promoting data literacy.

This OCM activity demonstrates your ability to be a change agent, influencing your agency data culture. **KEY ACTIVITIES** • Cultivate buy-in and interest in your data vision among key stakeholders through awareness campaigns that build broader consensus on your agency's future. • Communicate the value of data as a strategic asset and garner excitement from agency offices for product or service development opportunities to use data to respond to mission needs. • Focus your awareness campaign on the goal of educating your agency's workforce on data literacy. **AGENCY EXAMPLE** The CDO at the Federal Energy Regulatory Commission (FERC) facilitated meetings to demonstrate data product prototypes and basic data analytics visualizations and dashboards as an engagement strategy. These meetings showed key stakeholders' how programs were using data for better decision-making. This effort models data stewardship that facilitates improved data quality, which can lead to more trusted data products.

3.3. Skills Assessment

Review or update your workforce skills assessment to understand the coverage, quality, methods, and effectiveness of current staff data literacy and data skills.

This step locates existing gaps in data literacy and specific data skills and where additional training might be needed. **KEY ACTIVITIES** • Interview internal stakeholders across senior levels and job functions (e.g., operations, human resources, program management) to identify existing gaps in data literacy and specific data skills, as well as where additional training might be needed. • Carefully decide how best to address the gaps in your agency (i.e., training or hiring or both) by aligning to the needs of your staff and to your agency mission

needs and priorities. • Evaluate the readiness of agency offices to integrate data science and data analytics into their missions, especially those offices that may not have had that experience previously.

Stakeholder(s):

Department of Housing and Urban

Development :

AGENCY EXAMPLE The CDO at the Department of Housing and Urban Development (HUD) assessed existing job positions as part of their agency's capacity assessment to determine whether job titles and

responsibilities were aligned and that job with data analyst titles were in fact performing data-focused functions. The information gleaned from this assessment served as inputs into their budget requests and hiring plans.

3.4. Data Skills

Collaborate with key stakeholder groups, including your HR Office, to create a list of key data skills that are pertinent to your agency's success.

Use this list to develop a training plan that prioritizes these key data skills and links these efforts to your mission goals and objectives. **KEY ACTIVITIES** • Document a training plan that connects to your broader, agency-wide business goals and objectives to create a more cohesive data literacy effort. • Demonstrate exactly how data literacy training provides value and will progress your organization past its current state. • Create a plan which considers the current potential of your agency and what type of training format and option will best develop data literacy skills (e.g., upskill, reskill, etc.)

Stakeholder(s):

HR Offices

3.5. Training Roadmap

Connect with your HR office to develop a training roadmap that includes current and future training needs.

KEY ACTIVITIES • Create a training roadmap clearly outlining the main activities to progress your agency's data literacy. • Use the roadmap to provide your organization with a linear timeline of events which connects to the main implementation activities in your training plan. • Document exactly when each major milestone will take place.

Stakeholder(s):

HR Offices

3.6. Resources

Determine the resources needed to implement your training and submit a budget request for those needs (e.g., training instructors or training software).

KEY ACTIVITIES • Identify the necessary resources to fill identified agency gaps. This activity allows your agency to plan and solve potential roadblocks in the future. • Meticulously account for resources that you might not need immediately but may be required to sustain your training into the future.

3.7. Implementations

Consider the type of implementation that works best for your agency, whether that is a pilot program or a comprehensive training program.

KEY ACTIVITIES • Strategize on the proper requirements and training format prepares you to launch your data literacy training program. • Consider conducting a pilot program to test out your program including the courses

and instructors to see if they are a good fit for your agency's needs. Note: for those agencies that have a mature understanding of their data skills gaps, implementing a broad-scale program might be more appropriate.

3.8. Communications Plan

Develop a communications plan to deliver strategic messages to your workforce about your planned data literacy initiatives.

KEY ACTIVITIES • Build a strong data culture by influencing individuals within your workforce and relaying a narrative for data literacy, while highlighting the business value your initiative will bring.

3.9. Crossover Positions

Coordinate with your agency CHCO and agency CIO to determine crossovers in data and information-focused positions.

KEY ACTIVITIES • Identify complementary roles between the CIO and CDO functions to potentially address immediate staffing needs. • Consider that agency program officers, or the CIO may have an active or future strategy to implement data analytics or emerging technologies (Robotic Process Automation (RPA), Artificial Intelligence (AI), and Machine Learning (ML)) which could mean plans to hire for those positions. There may be existing data or information-focused positions that also support CDO requirements and priorities. • Connect with your CIO and Program office Directors to determine if there are existing or future positions that could be reorganized and better aligned to the office of the CDO.

Stakeholder(s):

CHCOs

CIOs

3.10. Hiring

Engage with stakeholder groups to learn about previous and current data and information technology-related hiring needs and plans across agency offices.

Understanding your agency's hiring, attrition, and turnover trends will help in identifying effective strategies and approaches for future hiring plans. **KEY ACTIVITIES** • Consult key stakeholders about existing hiring plans to integrate data roles into their programs and develop a cohesive approach on how these new roles will move the agency to become a more data driven organization. • Demonstrate your ability to elicit change by integrating your data vision into individual program plans.

3.11. Roles

Develop a hiring plan for future roles needed to fill skill gaps for your organization or carry out CDO mandates and Office of Management & Budget (OMB) requirements.

KEY ACTIVITIES • Identify your staffing needs early will aid in building a diverse and skilled team/workforce that can transform the organizational data culture. • Use staffing to create the right environment for future resources to be successful. • Determine what kind of data workforce you need to build, consider the key functional skill areas that will help address agency objectives. • Consider the type of data assets you want to establish for the organization, including data and analytics methods and processes you want to employ, and tools you can provide. • Incorporate the results of your benchmarking assessments as you develop your hiring plan. Consider all funding mechanisms both inside and outside of your agency including the requirements for leveraging a Working Capital Fund (WCF) to plan the budget for these staffing resources.

Stakeholder(s):
Office of Management & Budget

3.12. Metrics & Assessment

Assess and measure the mission value gained from data literacy efforts.

KEY ACTIVITIES • Demonstrate the measurable impact of your data literacy initiatives on your organization's bottom line. • Work with your HR Office to develop assessments to monitor the results of your data literacy initiative within the workforce. • Create metrics to measure progress of data literacy training programs and connect those metrics to your agency mission objectives and larger strategic goals.

PLAY #4. Data & Analytics

Drive transformation through a mission focused data and analytics strategy that can influence the enterprise-wide business strategy and answer key agency questions.

Focus on mission value creation and Key Performance Indicators (KPIs) to develop a modern data and analytics strategy that delivers tangible outcomes and value in the immediate and long-term while accounting for organizational, cultural, and technical constraints. A holistic data and analytics strategy also properly plans for budget and resource allocations for mission critical needs. Connecting mission value to your data specific investments and identifying resources that will allow your organization to maximize data for decision making and mission enabling purposes, will help move your organization forward even with a limited budget. Make sure your agency's data and analytics strategy is more than just complementary to your agency's mission and enterprise-wide business strategy. Your data strategy should focus on how to transform the organization and in turn influence and transform your mission objectives and business strategy.

4.1. Use Cases & Pain Points

Focus on use cases, pain points, and transformation/innovation opportunities when interviewing key stakeholders to assess your agency's current data landscape.

This assessment will present where the existing data sources and silos are and opportunities for data to accelerate change and improve existing KPIs. **KEY ACTIVITIES** • Identify the pain points from key stakeholders and where they see near term opportunities to transform the organization. • Develop a data and analytics strategy which considers perspectives from across the organization with the goal of influencing the overall business strategy.

4.2. Goals, Themes & Findings

Identify any shared goals, consistent themes, and parallel findings from the stakeholder interviews.

KEY ACTIVITIES • Discover points of intersection between stakeholder groups to connect priorities for future collaboration opportunities. • Create a data and analytics strategy needs to be enterprise focused and not centered on any single agency office or entity. • Address the overlapping priorities of agency staff across the organization and creating solutions that emphasize data sharing and shared services.

4.3. Budget Process

Understand your agency's budget process including the IT investment management processes to ensure that appropriate resources are planned for in future budgets as required under the Federal Data Strategy 2021 Action Plan - Action 3.

Having this knowledge will help provide an agency-wide lens when incorporating budget considerations into your data and analytics strategy. **KEY ACTIVITIES** • Gain an understanding of the IT investment management processes (e.g., Capital Planning and Investment Control or CPIC) to help guide future decision making and get integrated into the federal budget process. • Ensure your budgeting and resource allocation is aligned with the CIO Office and established federal-wide policies and practices in the future.

4.4. Problems & Questions

Connect your business problems to the key agency questions that data can help answer to prioritize transformational opportunities.

KEY ACTIVITIES • Conduct a deep dive into your core business problems to figure out its origins to better identify solutions that the data and analytics strategy can address. • Create a data and analytics strategy that clearly outlines and demonstrates your understanding of the core business problems within your organization. Only then can you specifically link these core business problems and their root causes to innovative solutions that answer your key agency questions.

4.5. Tools & Platforms

Conduct an inventory of your data tools and analytics platforms to see how well they are integrated into your agency's business processes.

KEY ACTIVITIES • Connect your existing data investments to your business processes helps you identify if these investments are still needed and are providing value to your organization. • Catalog all your existing tools and platforms to create an inventory that documents all your existing investments in one place.

4.6. Predictive Analytics

Understand the value of predictive analytics to create a future-focused organization.

KEY ACTIVITIES • Identify opportunities to gain a quick win through predictive analytics tools and platforms. • Incorporate predictive analytics and its ability to identify future trends to get your organization ahead. Predictive analytics tools and platforms can cut costs, rapidly identify solutions to future problems, and create a culture of preventing problems, not just reacting to them within your organization. • Investigate the power of predictive analytics tools to transform your organization to demonstrate your vision.

4.7. Strategy Framework

Develop a strategy framework that moves the agency to a "future-state" focus and positions you as a strategic change agent.

KEY ACTIVITIES • Link your business problems and agency mission to transformative solutions that are driven by greater data utilization, established data practices, and defined data management standards. • Establish a framework that considers the agency's size, data priorities, and data architecture. • Use this framework to highlight your plans to progress the data culture away from the current state and influence the enterprise-wide business strategy.

4.8. Strategic Planning

Create a working group with stakeholders across various agency offices to assist with any strategic planning activities.

KEY ACTIVITIES • Create working relationships between key agency employees for information sharing and strategy building purposes. • Build a holistic enterprise data and analytics strategy that brings these groups together to connect priorities across agency offices.

Stakeholder(s):**Department of Labor :**
AGENCY EXAMPLE

- *The CDO of the Department of Labor organized a weekly sub-group with the Chief Evaluation Officer, Chief Perform-*

ance Officer, and the Chief Statistical Officer to strategize on how to prioritize data projects across agency offices and departments.

4.9. Goals & Objectives

Identify the strategic goals, sub-goals, and key objectives for your data and analytics strategy.

KEY ACTIVITIES • Define the key markers for success within your data and analytics strategy and document them in a clear and concise format. • Identify goals, sub-goals, and key objectives that clearly illustrate your plans to leverage data as a strategic asset while also centering your agency's mission and data customer's priorities.

4.10. Resources

Link data specific resource allocations to the key business problems and objectives that are core to your data and analytics strategy.

KEY ACTIVITIES • Connect and explain how any new data specific technologies, programs, etc. will address your agency's key challenges. • Understand the problems your agency is facing and your core mission objectives before you submit plans to invest in data specific resources. • Include resource allocations and investment plans that provides a solution to a business problem and further your agency's set strategic goals.

Stakeholder(s):**USDA :**
AGENCY EXAMPLE

- *The USDA CDO identified a key business problem; employees had become accustomed to slow processes due to limited or no data access. Understanding this reality allowed them to dig deeper into the root of the problem through stakeholder*

interviews and design sprints where they identified the data that existed and the data that was needed to improve efficiency. This ultimately led to the creation of new infrastructure, the USDA's Enterprise Data Analytics Platform and Toolset (EDAPT).

4.11. Vision Statements

Create vision statements on ways to transform data stewardship, analytics, data technology/tools, data literacy, and data governance.

KEY ACTIVITIES • Align the messaging in your data and analytics strategy to the future state, moving beyond the current data environment and prioritizing the projects and activities that will transform your agency. • Track and account for existing data-specific budget allocations and resources when advocating for transformation activities. Also, anticipate impacts to other strategies at the agency level including the agency strategic plan, the IT strategy, etc.

4.12. Strategic Plan

Develop a roadmap outlining a three-to-five-year strategic plan to address key objectives and strategic goals outlined in the action plan.

KEY ACTIVITIES • Use the strategic roadmap to demonstrate your ability to set goals that are attainable and map out longer timelines for projects that are five to ten years into the future. • Provide an actionable timeline that features each marker (e.g., goals, subgoals, objectives, pilot projects) within your data and analytics strategy. • Prioritize goals and projects to tackle first, such as the high impact projects with shorter timelines that can demonstrate value early and help you gain influence.

4.13. Data Investments

Analyze any existing and planned data investments to see if they are directly addressing your key business problems, compatible with your agency's mission, and aligned with your target data architecture.

Consult your agency's CPIC or budget processes for further guidance on this step. **KEY ACTIVITIES** • Create alignment between your mission needs and your existing data resources. • Identify any inefficiencies that exist within your organization to help you consider different resource options or suggest replacing certain budget requests that are not connecting directly to your core business problems.

4.14. Timelines & Metrics

Review any set strategic goals and key objectives to ensure they have clear timelines and metrics.

KEY ACTIVITIES • Set clear timelines and metrics to track progress and account for any roadblocks to your data and analytics strategy that may emerge. • Provide an opportunity to revise your strategy periodically based on goals or objectives that are not consistently achieving the required standards linked to mission KPIs.

4.15. Action Plan

Create an action plan that outlines key objectives and strategic goals with assignments to key stakeholders (e.g., data stewards.).

KEY ACTIVITIES • Ensure accountability for each set objective and goal and a key point person who can manage its progress. • Develop measurable objectives and strategic goals that are managed by individuals across your organization sets your data and analytics strategy's action plan up for success. For example, data stewards can oversee a specific portion of the strategy that best aligns to their strengths and job duties. • Work with data stewards to define future success factors for their assignments as the action plan progresses.

4.16. Projects & Capabilities

Identify and prioritize the projects within your agency that can accelerate progress while building critical capabilities.

KEY ACTIVITY • Prioritize projects which demonstrate near term value to gain trust from your key stakeholders and buy-in for future projects with longer implementation timelines and more challenging projects. • Include pilot projects that can demonstrate the value data can bring to programs and build a business case for future investments that support the enterprise.

Stakeholder(s):**Food and Drug Administration :**
AGENCY EXAMPLE

- *The Food and Drug Administration (FDA) CDO in their Data Modernization Action Plan identified “driver projects” defined as initiatives with measurable*

value that allow multiple stakeholders to envision what is possible, allow technical and data experts to identify needed solutions, and develop foundational capabilities.

4.17. Advocacy

When interacting with key stakeholders to advocate for any data and analytics investments, emphasize the importance of these investments as integral to both the agency’s IT strategy and data and analytics strategy.

KEY ACTIVITIES • Emphasize the CDO role as integral across business units and interconnected with other priorities of the organization. • Ensure stakeholder groups understand the mission enabling value of data investments as equally critical to IT investments. For example, work closely with the CIO and other key stakeholders to develop a case for change to advocate for a target data architecture plan.

4.18. Audits

Audit the action plan on a yearly basis to ensure it is aligned with changing priorities and new iterations of the Federal Data Strategy.

KEY ACTIVITIES • Ensure your data and analytics strategy connects to the larger priorities of the federal government and CDO community. • Keep your agency’s data and analytics strategy moving forward by incorporating new visions and priorities, and emerging technologies that could be used to solve business problems as your organization progresses in data maturity.

4.19. Metrics

Measure the progress of your data and analytics strategy including your strategy framework, action plan, and critical projects.

KEY ACTIVITIES • Keep your data and analytics strategy updated and consistent with changing priorities, mission KPIs, and lessons learned. • Look for any set objectives that are not demonstrating success factors to locate potential roadblocks and identify a different path.

4.20. Communication

Continuously communicate the value and measured progress of your data and analytics strategy’s action plan and critical projects to external and internal stakeholders.

KEY ACTIVITIES • Gain influence and create awareness of your agency’s success by reiterating the success factors of your data and analytics strategy to key stakeholder groups. • Find opportunities to demonstrate the value of projects and initiatives that have been implemented, and the need for future investments to further grow progress in those avenues. • Demonstrate your ability to build and grow trust within your stakeholder relationships by demonstrating how your agency is advancing.

4.21. Openness & Interoperability

Consider using open and interoperable tools as a sustainable and more cost-effective resource to address your mission needs.

KEY ACTIVITIES • Provide a low or no-cost option that fosters greater collaboration and integrated decision-making opportunities. • Maximize your data use, as directed in the Evidence Act and ease barriers to access for internal users. Unlike software that require licenses, these types of tools provide no cost options to users.

Stakeholder(s):

Department of Labor :

AGENCY EXAMPLE

- *The Department of Labor (DOL) CDO primarily uses open-source analytical tools as a sustainable and scalable sol-*

ution for its organization. They engineer the freeware version of these tools to be compatible with their organization's needs allowing more customers to gain access without having to buy licenses.

4.22. AI/ML & Analytics

Prioritize centralized data analytics, Machine Learning (ML), and Artificial Intelligence (AI) projects in your data and analytics strategy and investment plans.

KEY ACTIVITIES When a need or problem is clearly defined, ML and AI has the potential to recommend and/or automate decisions and actions, increasing efficiency for agency offices. • Implement a methodical approach to build ML and AI pipelines. • Develop ML and AI models that provide both the functionality and the procedures for how these models make decisions. • Communicate through your strategy, the tangible benefits of using ML and AI to support your agency's mission.

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